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Identification of the “Minimal Triangle” and Other Common Event-to-Event Transitions in Conflict and Containment Incidents

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Although individual conflict and containment events among acute psychiatric inpatients have been studied in some detail, the relationship of these events to each other has not. In particular, little is known about the temporal order of events for individual patients. This study aimed to identify the most common pathways from event to event. A sample of 522 patients was recruited from 84 acute psychiatric wards in 31 hospital locations in London and the surrounding areas during 2009–2010. Data on the order of conflict and containment events were collected for the first two weeks of admission from patients' case notes. Event-to-event transitions were tabulated and depicted diagrammatically. Event types were tested for their most common temporal placing in sequences of events. Most conflict and containment occurs within and between events of the minimal triangle (verbal aggression, de-escalation, and PRN medication), and the majority of these event sequences conclude in no further events; a minority transition to other, more

severe, events. Verbal abuse and medication refusal were more likely to start sequences of disturbed behaviour. Training in the prevention and management of violence needs to acknowledge that a gradual escalation of patient behaviour does not always occur. Verbal aggression is a critical initiator of conflict events, and requires more detailed and sustained research on optimal management and prevention strategies. Similar research is required into medication refusal by inpatients.

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Acute psychiatric wards manage disturbed mentally ill patients for short duration admissions. Those patients are often at risk of behaving in ways that threaten their own and others' safety, for example, self-harm, suicide, aggression, and other behaviours referred to collectively as “conflict.” In order to keep everyone safe, staff deploy a range of strategies, including coerced medication, special observation, manual restraint, and seclusion; methods referred to collectively as “containment.” Since one of the primary tasks of an acute ward is to keep patients safe (Bowers, Chaplin, Quirk, & Lelliot, 2009), the efficacy and efficiency of containment methods are important issues for evaluative research. In addition, the minimisation of coercion and maximisation of patient comfort are widely shared values, making it important to investigate whether the usage of containment can be diminished whilst maintaining safety.

For some time we have been conducting a programme of research investigating these questions. Our large cross-sectional

exploration of 136 wards, the City-128 study (Bowers, 2009), identified many associations between different conflict and containment events, but data was at the level of ward shifts rather than patients, so such associations could arise from interactions between patients, rather than associations within patients. For example, an association between aggression to objects and seclusion could not unequivocally mean that patients who were aggressive to objects were prone to being secluded (Bowers et al., 2010). Those seclusions might have occurred within the same shift but prior to the aggression, may have occurred to quite different patients on the same ward at the same time, or there may have been other intervening events. Similar interpretative issues occurred with our longitudinal investigation of acute wards in one National Health Service (NHS) Trust, the Tompkins Acute Ward Study (Bowers, Allan, Simpson, Nijman, & Warren, 2007). Again, data were at the level of shifts, and associations between and within patients could not be distinguished, nor could the precise order of events be described.

Other published research on conflict and containment events provides rudimentary information about sequences of events, in that triggers or precursors are often described and outcomes or consequences are also sometimes described. The research literature on aggression in psychiatry identifies nine major groups of antecedents: patient-patient interaction, staff-patient interaction, patient conflict behaviours, external/personal issues, structural issues, patient behavioural cues, patient emotional cues, patient symptoms, and no clear cause (Papadopoulos et al., *in press*). The immediate consequences of aggression, in addition to physical injury and damage to property, include a range of different containment methods: seclusion (Delaney, Cleary, Jordan, & Horsfall, 2001), manual restraint (Langsrud, Linaker, & Morken, 2007), and oral medication (El-Badri & Mellsop, 2006) among others. Similar information about immediate precursors and consequences can be gleaned from studies of seclusion (Kaltiala-Heino, Tuohimäki, Korkeila, & Lehtinen, 2003), special observation (Kettles & Paterson, 2007), manual restraint (Gudjonsson, Rabe-Hesketh, & Szmukler, 2004), and so forth. There are few other resources providing information about more lengthy concatenations of conflict and containment events. If it were possible to identify common sequences for individual patients (i.e., common pathways with some branches having more benign outcomes), it might be possible to determine the best ways to manage certain conflict behaviours.

We therefore conducted a specific study on the sequence of conflict and containment events for individual patients (CONSEQ), with a view to indentifying the most common pathways from event to event.

METHOD

Design and Participants

"A sample of 522 adult psychiatric inpatients was recruited from 84 NHS acute psychiatric wards and psychiatric intensive care units in 31 randomly selected hospital lo-

cations in London and the surrounding areas." A standardised data collection period was set as the first two weeks of the current admission. Patients admitted for less than two weeks were therefore excluded. Data were collected between July 2009 and March 2010. Median length of stay in NHS adult mental health wards in the UK during this period was 17 days (<http://www.hscic.gov.uk/catalogue/PUB02570/hosp-epis-stat-admi-main-spec-10-11-tab.xls>).

Measures

For each selected patient, data were collected from case notes about involvement in incidents of conflict and containment during the first two weeks of the current admission using the Patient-Staff Conflict Checklist (PCC). The PCC is accompanied by strict definitions for each conflict and containment event and has shown good inter-rater reliability (Bowers et al., 2005). This instrument was used to record the number of conflict and containment events during each shift as documented in the patient record. Conflict was defined as behaviours likely to harm patients or others and included: verbal aggression, physical aggression against objects, physical aggression against self, suicide attempt, physical aggression against others, smoking in a no smoking area, refusing to eat, refusing to drink, refusing to attend to personal hygiene, refusing to get up and out of bed, refusing to go to bed, refusing to see ward staff, alcohol use, other substance use, attempting to abscond, absconding, refusing regular medication, refusing PRN psychotropic medication, and demanding PRN medication. Containment was defined as staff actions to protect patients and others from harm and included: time out, show of force, manual restraint, enforced intra-muscular medication, PRN (psychotropic) medication, seclusion, sending the patient to a psychiatric intensive care unit, intermittent special observation, constant special observation, formal (legal) detention in hospital, and de-escalation (verbal intervention by staff to calm the patient down).

Procedure

The study was approved by Kings College Hospital Research Ethics Committee. Patients were eligible to participate if they were inpatients of the selected acute wards, 18–65 years old, had been in the hospital for two weeks or more, were present on the ward when the survey was conducted, were safe enough to be approached (as judged by the ward staff), and gave informed consent to take part in the study. When visiting a ward, one of the researchers first liaised with nursing staff to identify eligible patients, of whom six per ward were randomly selected to participate (judged to be the maximum that could be recruited per researcher day). Nursing staff were consulted as to whether selected patients were well enough to be approached and able to give informed consent. Patients who agreed to participate in the study were given an information sheet and had the opportunity to raise any concerns with the researcher, before being asked to consent. Nine hundred and seventy-three selected patients were

deemed by staff to be too ill to safely approach or were off the ward at the time of the researcher's visit (e.g., on leave). A further 407 selected patients refused to participate. The researcher accessed the patients' medical and nursing records for approximately 60 minutes to complete the PCC. Data were entered directly onto a laptop computer. In addition to two university researchers, 18 Mental Health Research Network Clinical Studies Officers were trained to collect data from the participating wards.

Analysis

Events were analysed at the level of "patient-shifts," in other words the focus was on the series of event-to-event transitions during each nursing shift for each individual patient. Patient-shifts during which nothing occurred were ignored. An event could occur (a) by itself within the shift, in which case there was a transition from no event to an event, and a transition from the event to no event. Alternatively, an event could (b) start a chain of other events, in which case there would be a transition from no event to that event, and a transition from that event to the next event. Additionally, an event could occur (c) within a sequence of events within the shift for a patient, in which case there would be a transition from the preceding event to that event, and a transition from that event to the subsequent event. Finally, an event could occur (d) at the end of a sequence of events during the shift under consideration, in which case there would be a transition from the previous event to that event, and from that event to no event. All transitions were counted in the entire dataset and cross tabulated for further analysis.

Given the large number of event types, many of which only occurred rarely, the cross tabulation was simplified by discard-

ing any events that did not have a minimum of ten transitions to one other event (e.g., suicide attempts, consensual sexual touching, public masturbation) in the dataset. Transitions containing combination codes were also discarded ($n = 52$ codes, 33 of which occurred only once in the dataset). Combination codes occurred where events of different types in the original data (nursing notes) did not allow the identification of an order (e.g., co-occurring incidents of verbal and physical aggression). The remaining transitions were then depicted in diagrams of various types to display the information they contained effectively. The location of event types as solo events, sequence starts, middles, or ends were tested using chi square tests, in order to identify what events were most likely to start or end sequences of conflict and containment.

RESULTS

Sequence Lengths

Figure 1 shows the frequency of different sequence lengths. Most events occurred by themselves as solo events within the shift, with progressively fewer sequences of longer lengths, resulting in the skewed distribution visible in the chart. There were 17,596 patient shifts in the data where no conflict or containment event occurred, representing 64% of the total.

Sequence Positions: Solo Events versus Starts, Middles, or Ends

Table 1 shows the main results of the analysis. Events that did not transition to a least one other event ten or more times and combination events have both been excluded for simplicity and ease of presentation. The first few columns show the frequency

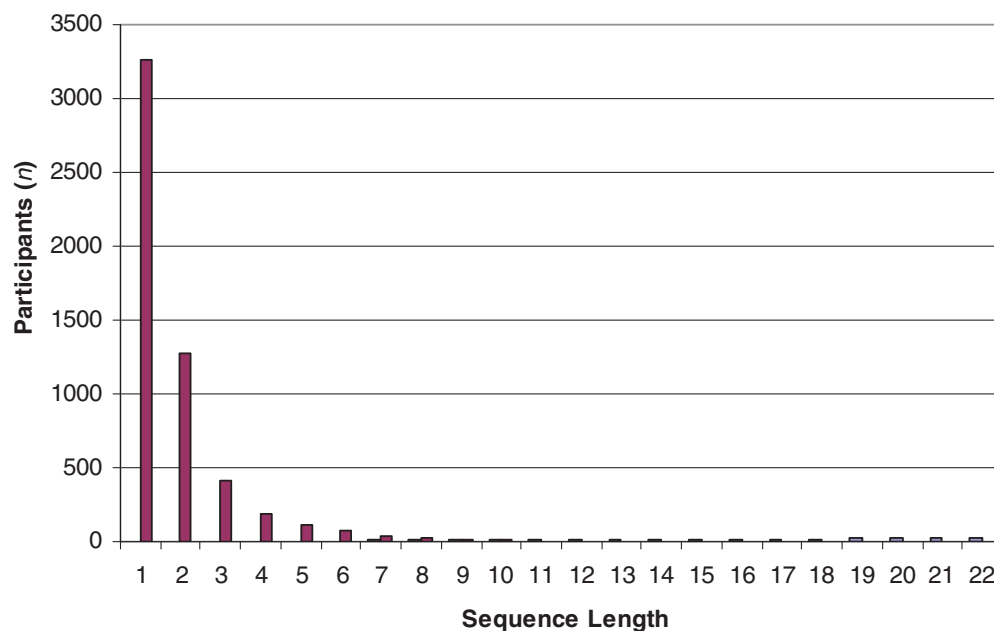


FIGURE 1 Frequency of Sequence Lengths during Patient Shifts.

TABLE 1
Transition Tabulation with Comparison of Sequence Location

	Sequence Context						Next Event																							
	Solo	Starts	Mids	Ends	Chi2	(p)	Attempted absconding	Absconding official report	Absconding return	Verbal aggression	Aggression to objects	Physical aggression to others	Refuse to drink	Refuse to eat	Refusal physical hygiene	Refuse to see workers	Refuse PRN medication	Demand PRN medication	Refuse regular medication	De-escalation	PRN medication	Coerced intramuscular medication	Start intermittent observation	Start constant observation	End seclusion	Show of force	Manual restraint	Time out	Start detention	
Attempted absconding	18	49	49	11	57.56	0.000	2	0	2	7	6	4	0	1	0	1	2	0	1	25	6	1	1	0	0	9	11	2	3	
Absconding missing	45	61	16	7	59.79	0.000	0	39	30	1	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	1	1	0	0	
Absconding official report	11	13	18	28	17.48	0.001	0	0	21	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	
Absconding return	19	21	33	32	15.43	0.001	0	0	0	4	2	0	0	1	0	0	0	0	0	2	6	17	1	2	4	0	0	0	4	
Alcohol use	9	9	7	6	1.01	0.799	0	0	1	4	0	0	0	0	0	0	0	2	0	2	1	0	0	0	0	0	0	0	0	
Drug use	13	4	6	5	2.38	0.497	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	1	1	
Verbal aggression	354	514	310	156	293.12	0.000	7	0	2	35	62	32	1	12	13	26	30	5	41	242	181	5	5	0	0	16	8	38	3	
Aggression to objects	44	94	134	37	128.47	0.000	7	0	0	31	8	21	0	1	1	1	12	3	2	51	38	0	1	1	3	8	8	5	2	
Physical aggression to others	19	58	96	17	126.67	0.000	2	0	0	10	7	3	0	1	1	1	7	0	0	37	19	2	0	2	0	10	28	15	1	
Self-harm	27	47	35	6	41.35	0.000	2	0	1	4	2	0	0	2	1	4	3	0	0	15	23	0	2	4	1	1	6	2	0	
Suicide attempt	3	16	13	3	22.17	0.000	1	0	1	1	2	1	0	0	0	1	1	0	0	6	8	0	2	1	0	0	0	1	0	
Exposing self	18	31	22	5	24.67	0.000	2	0	0	6	2	1	0	1	2	0	1	1	3	13	9	0	0	0	1	0	2	2	0	
Non-consensual sexual touching	6	15	13	8	10.05	0.018	0	0	0	3	1	2	0	0	1	0	0	0	0	13	5	1	0	1	0	0	1	0	0	
Smoking	37	29	14	9	13.71	0.003	0	1	0	20	3	2	0	2	0	1	2	0	2	8	0	0	0	0	0	1	0	0	0	
Refuse to drink	4	2	4	11	11.43	0.010	0	0	0	0	0	0	0	2	0	1	0	0	1	0	1	0	0	0	0	0	0	1	0	
Refuse to eat	297	96	33	83	166.58	0.000	4	0	0	13	1	2	13	5	5	14	2	3	22	12	18	0	1	0	0	0	0	0	0	
Refuse to go to bed	45	22	22	20	2.99	0.392	0	0	0	7	3	2	0	0	1	1	2	0	1	7	15	0	0	0	0	4	0	0	0	
Refuse to get up	23	18	3	3	19.45	0.000	0	0	0	0	0	0	10	1	3	0	0	1	2	2	1	0	0	0	0	0	0	0	0	
Refuse physical hygiene	101	26	12	29	57.79	0.000	1	0	0	12	2	0	0	3	0	3	0	0	2	8	3	0	0	0	0	0	0	0	0	
Refuse to see workers	146	73	56	79	12.77	0.005	1	0	0	37	3	1	0	15	4	4	9	0	7	8	9	2	10	1	0	0	0	0	1	
Refuse PRN medication	29	23	90	36	91.62	0.000	2	0	0	9	5	3	0	1	1	0	3	1	1	12	30	16	2	0	0	5	8	1	0	
Demand PRN medication	49	35	14	16	15.26	0.002	0	0	0	7	1	0	0	0	0	0	0	0	2	18	15	1	0	0	0	0	0	0	0	
Refuse regular medication	335	134	56	67	177.09	0.000	1	0	0	36	3	6	0	15	1	14	4	1	4	27	36	6	0	0	1	9	3	1	1	
De-escalation	177	67	292	330	305.14	0.000	5	0	5	69	17	14	0	16	1	9	9	2	10	5	109	3	5	1	3	9	6	20	0	
PRN medication	1,004	183	218	606	604.41	0.000	11	2	0	62	16	5	0	12	5	11	12	10	1	32	94	0	20	9	9	2	2	14	2	
Coerced intramuscular medication	4	1	36	51	100.46	0.000	0	0	0	7	1	2	0	3	0	0	1	0	0	2	3	1	0	3	1	1	1	3	0	
Start intensive care	6	3	8	15	13.28	0.004	0	0	0	3	0	0	0	0	0	0	0	0	0	1	1	0	1	1	0	1	0	1	0	
End intensive care	12	7	1	0	12.72	0.005	0	1	0	0	0	0	0	0	0	1	0	0	0	0	1	0	2	0	0	0	0	0	0	
Start intermittent observation	31	10	66	234	462.48	0.000	5	1	0	10	2	0	0	5	2	7	1	0	4	1	20	0	0	0	0	1	0	2	1	
End intermittent observation	74	15	11	9	58.53	0.000	0	0	0	0	0	0	0	1	0	0	0	0	0	1	3	0	3	15	0	0	0	0	0	
Start constant observation	10	1	32	60	102.94	0.000	0	0	0	4	1	0	0	0	0	0	2	0	0	0	12	0	0	0	0	2	0	5	0	
End constant observation	18	33	9	5	33.30	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	37	2	0	0	0	0	0	
Start seclusion	3	4	38	13	70.89	0.000	0	0	0	3	4	1	0	0	0	0	1	0	0	1	8	3	1	0	12	1	1	1	1	
End seclusion	10	14	13	20	8.80	0.032	0	0	0	4	0	1	0	0	0	1	0	0	2	0	6	0	5	5	0	0	0	1	0	
Show of force	1	1	79	12	222.67	0.000	1	0	0	3	2	0	0	0	0	0	0	8	1	2	7	27	6	0	0	0	0	17	5	0
Manual restraint	1	3	102	8	309.39	0.000	1	1	1	8	3	4	0	0	0	1	4	0	0	8	18	32	0	2	0	0	0	15	0	
Time out	14	5	74	63	124.73	0.000	0	0	0	11	3	3	0	2	0	5	2	0	3	12	22	1	1	0	1	2	1	0	0	
Start informal	121	178	0	4	324.43	0.000	1	0	0	10	0	1	1	1	0	10	1	0	0	2	17	0	114	16	0	0	0	0	0	0
End informal	8	14	16	0	21.21	0.000	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	25	
Start detention	65	125	20	27	139.39	0.000	1	0	0	13	5	2	0	2	0	10	1	1	1	0	13	1	67	16	0	1	0	0	0	0
Start detention/intensive care	6	25	0	0	63.95	0.000	0	0	0	2	0	0	0	0	0	1	0	0	1	0	3	0	10	6	0	0	0	0	0	0

*Chi squares calculated from total number solo events (3236), start events (2121), mid events (2103) and end events (2145). Events only appear as rows in this table if they transition to another event or end a sequence 10 or more times in the dataset.

each event occurs as solo, start of sequence, within a sequence, or at the end of the sequence, and uses a chi square test to see if these frequencies significantly differ from the distribution of all other events collectively. The following events were more likely to start sequences of events: attempted absconding; absconding missing (absent from the ward but not formally reported to managers or the police); verbal aggression; aggression to objects; physical aggression; self-harm; suicide attempt; exposing self; non-consensual sexual touching; smoking; refusing to get up; refusing regular medication; starting informal care; starting formal detention. Events more likely to occur by themselves without any other events during the shift were: self-harm; absconding missing; drug use; verbal aggression; exposing self; refusing to eat; refusing to go to bed; refusing to get up; refusing physical hygiene; refusing to see workers; refusing regular medication; PRN medication; starting informal care; starting formal detention. Events more likely to end a sequence were: absconding official report (absent from the ward and formally reported to managers or the police); absconding return; de-escalation; PRN medication; coerced intramuscular medication; starting intermittent observation; starting constant observation; ending seclusion; time out. The same event can appear in several categories because multiple comparisons are being made, for example absconding missing was more likely to be both a sequence start and a solo event, relative to the other categories.

The Minimal Triangle and Event-to-Event Transitions

Three events and the transitions among them occur much more frequently than any others in the data. We have called these the minimal triangle because they are a nexus of common, low level, low risk events in comparison to others. They are displayed in Figure 2, where circles represent conflict and squares represent containment. The size of the squares and circles is proportional to the number of events, and the width of the arrows indicating transitions is proportional to their number. The main direction of events here is from verbal aggression to de-escalation and/or PRN medication. The most common events and event sequences in acute psychiatry follow this form.

A much smaller number of minimal triangle events transition to other forms of conflict and containment, and these are displayed in Figure 3, which follows the same conventions and principles as Figure 2. When minimal triangle events transition to further containment, this tends to be either time out or intermittent observation. When they transition to conflict, this can be to more serious violence, either to objects or others, or to a range of passive-aggressive behaviours, such as refusing food, medication, or interaction with workers.

In contrast to transitions from the minimal triangle to other events, which can be viewed as escalating transitions, there are a large number of transitions from these other events to the minimal triangle. These can be regarded as de-escalating transitions, and are depicted in Figure 4. The most prominent of these are

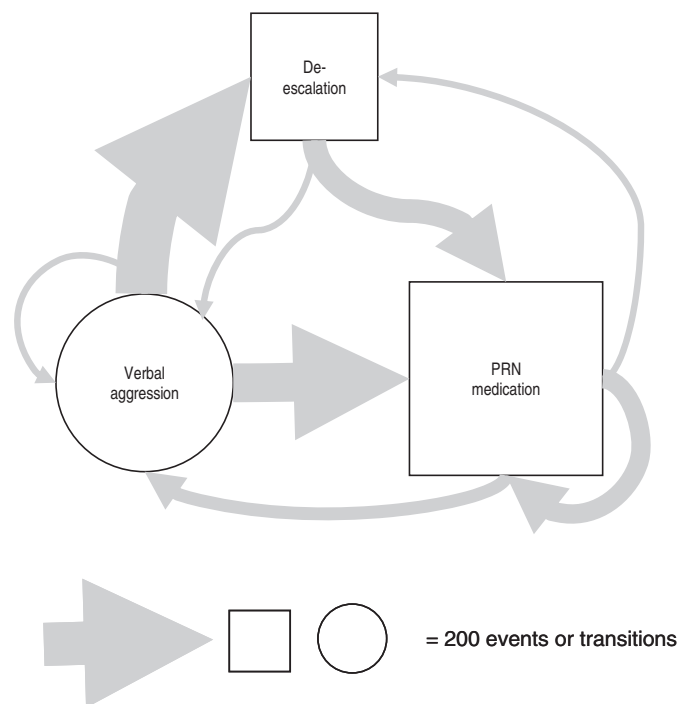


FIGURE 2 The Minimal Triangle. The size of the squares and circles is proportional to the number of events; the width of the arrows indicates transitions and is proportional to their number.

de-escalation from more serious aggression and transitions to the minimal triangle following disagreements about medication.

The most common transitions between other events are displayed in Figure 5. These break down into about five groupings: (1) absconding to eventual return; (2) refusal of medication linked to refusal of other care offered by staff; (3) changes between intermittent and constant observation; (4) beginning and ending seclusion; and (5) aggression leading to manual restraint and coerced medication. In comparison to transitions to and from the minimal triangle, these transitions were relatively rare. Together with those transitions mapped by the minimal triangle, these delineate the most common sequences in the dataset.

The Overall Picture

One further Figure is presented to complete the picture of typical event transitions in acute psychiatry. Figure 6 includes transitions from no events (inward pointing arrows in black) and to no further events (outward pointing arrows in gray), as well as the main flows of transitions between groups. Considering Figure 6 alongside the other Figures, we can summarise as follows. About two thirds of the time, a patient's shift passes with no conflict or containment event. When a conflict or containment happens, it is most likely to occur by itself (transit from nothing to nothing) and if not, the sequence soon ceases after one or two more events. Long sequences of conflict and containment events are very rare. Most conflict and containment occurs within and between events of the minimal triangle (verbal

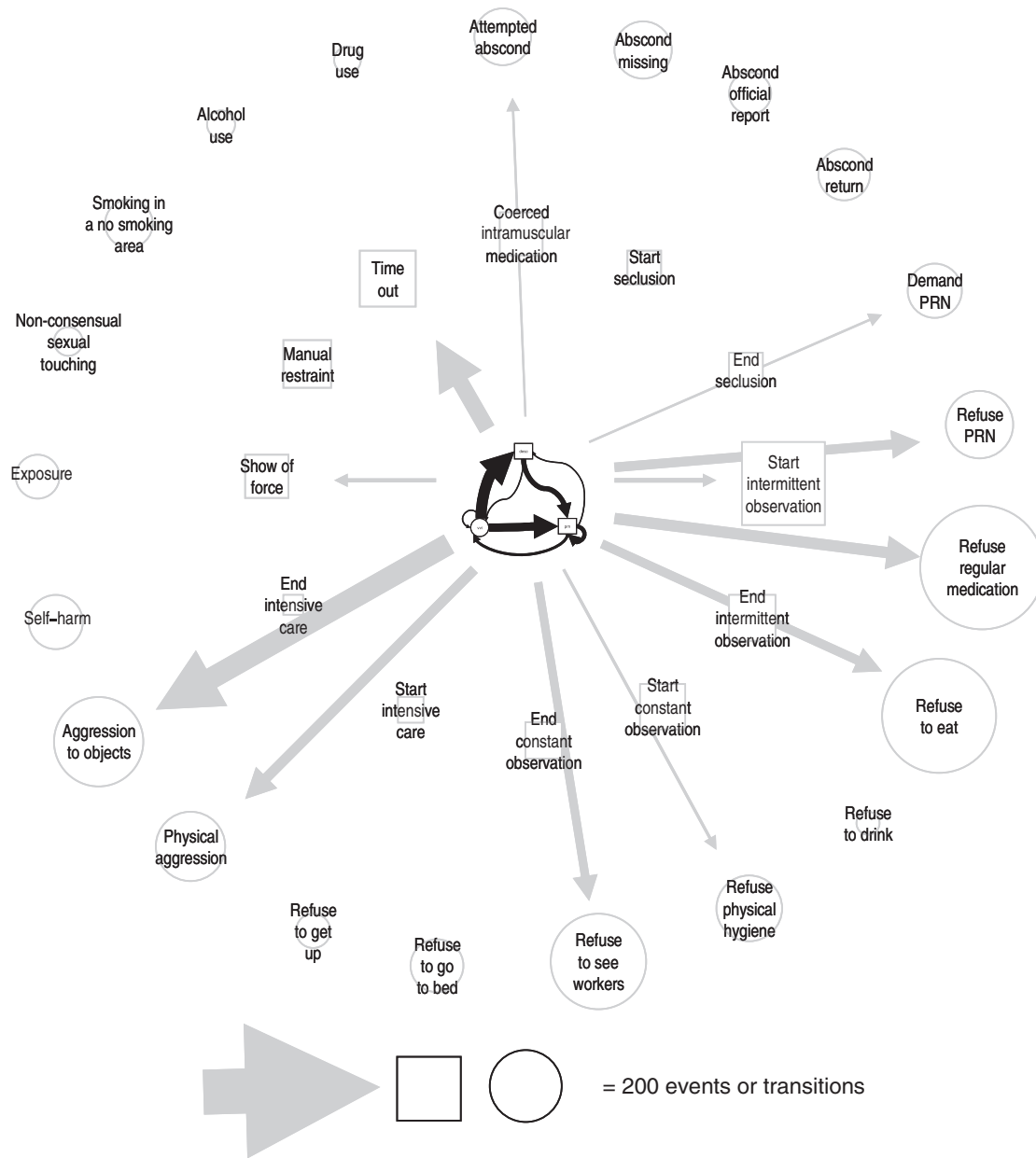


FIGURE 3 Transitions from the Minimal Triangle to other Events. The size of the squares and circles is proportional to the number of events; the width of the arrows indicates transitions and is proportional to their number.

aggression, de-escalation, and PRN medication), and the majority of these event sequences conclude in no further events, with a minority transiting to other conflict and containment events. The majority of other conflict and containment events also occur with no preceding event, and most transition to no following event, but a substantial number transition to the minimal triangle.

DISCUSSION

The description and definition of the minimal triangle sheds new light on the pattern of conflict and containment events on acute wards. These are the most common events, and in most

cases result in benign outcomes. From the point of view of short-term management, de-escalation and PRN medication seem to be quite effective and are widely applicable. Greater development of skills and widening the repertoire in de-escalation might improve further on its capacity to bring an end to incipient or ongoing conflict (Price & Baker, 2012). Similarly, anything that can be done to improve PRN usage (e.g., drug selection, dosage, route) might contribute to curtailing event sequences and crises within the minimal triangle.

Verbal aggression was the most frequent conflict event. Its prominence and role in the minimal triangle underscores a

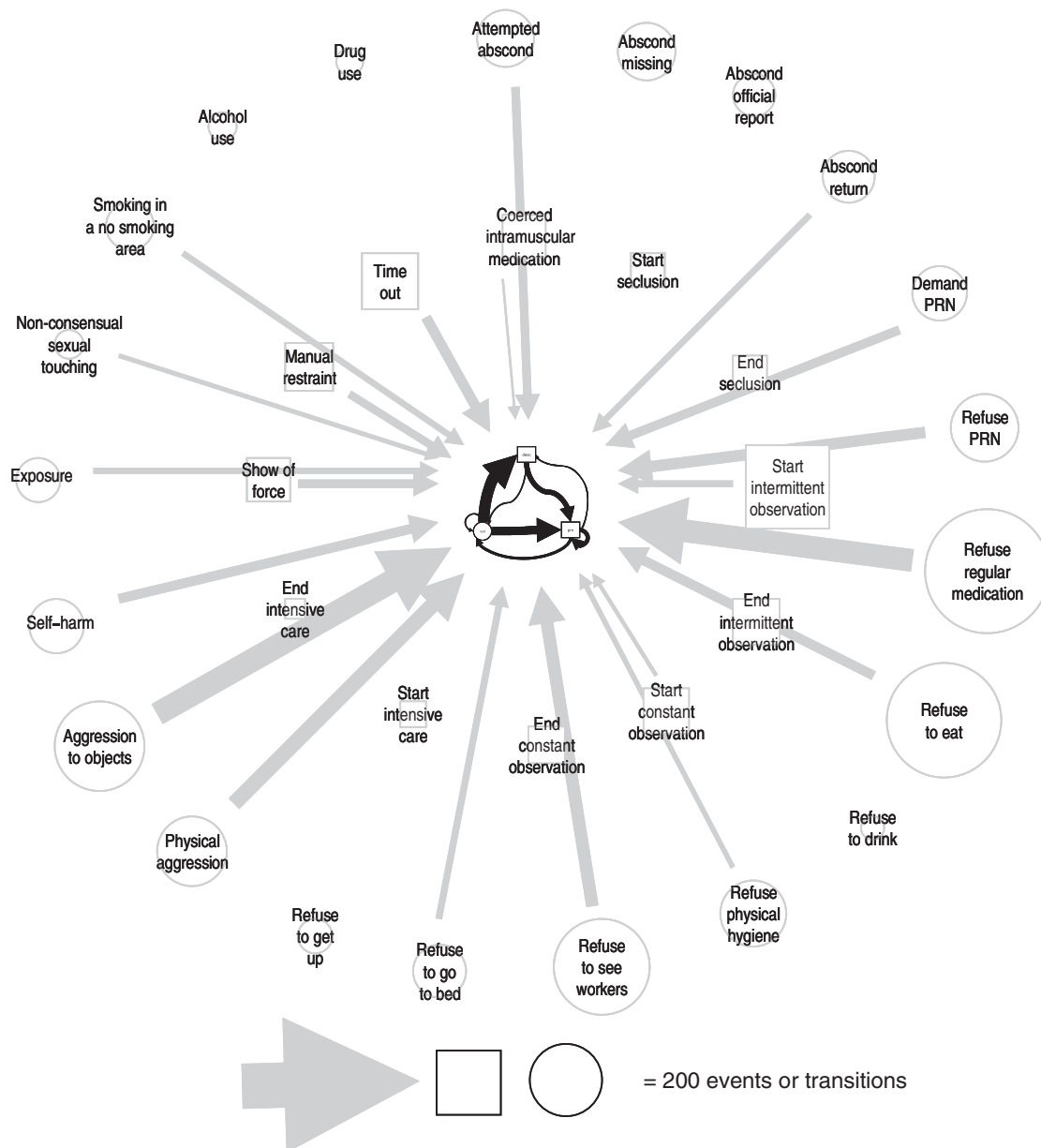


FIGURE 4 Transitions from other Events to the Minimal Triangle. The size of the squares and circles is proportional to the number of events. The width of the arrows indicates transitions and is proportional to their number.

persistent shortcoming in the inpatient research literature. There is a paucity of studies focussed on verbal aggression compared to the large body of research examining physical forms of aggression. Studies have tended to include only physical violence or injuries, combine different forms of behaviour into a total aggression category, or only count the most serious type of aggression where patients have been involved in multiple incidents. The impact of verbal abuse on staff has been largely ignored, although known to be the conflict behaviour most strongly linked to morale (Bowers, Allan, Simpson, Jones, & Whittington, 2009). Verbal aggression often arises from denial of patient requests,

management of medication, or simply frustration (Adams & Whittington, 1995; Inoue, Tsukano, Muraoka, Kaneko, & Okamura, 2006; Yassi, Tate, Cooper, Jenkins, & Trottier, 1998). As the minimal triangle indicates, the most common response from staff was to talk with the aggressive patient with the intention of calming and reducing the risk of further conflict arising. This was not always effective and provision of PRN medication was sometimes required. Responding with medication and coercive interventions may contribute to a patient's aggressive behaviour (Duxbury, 2002), and there was evidence of this in some cases where administration of PRN medication

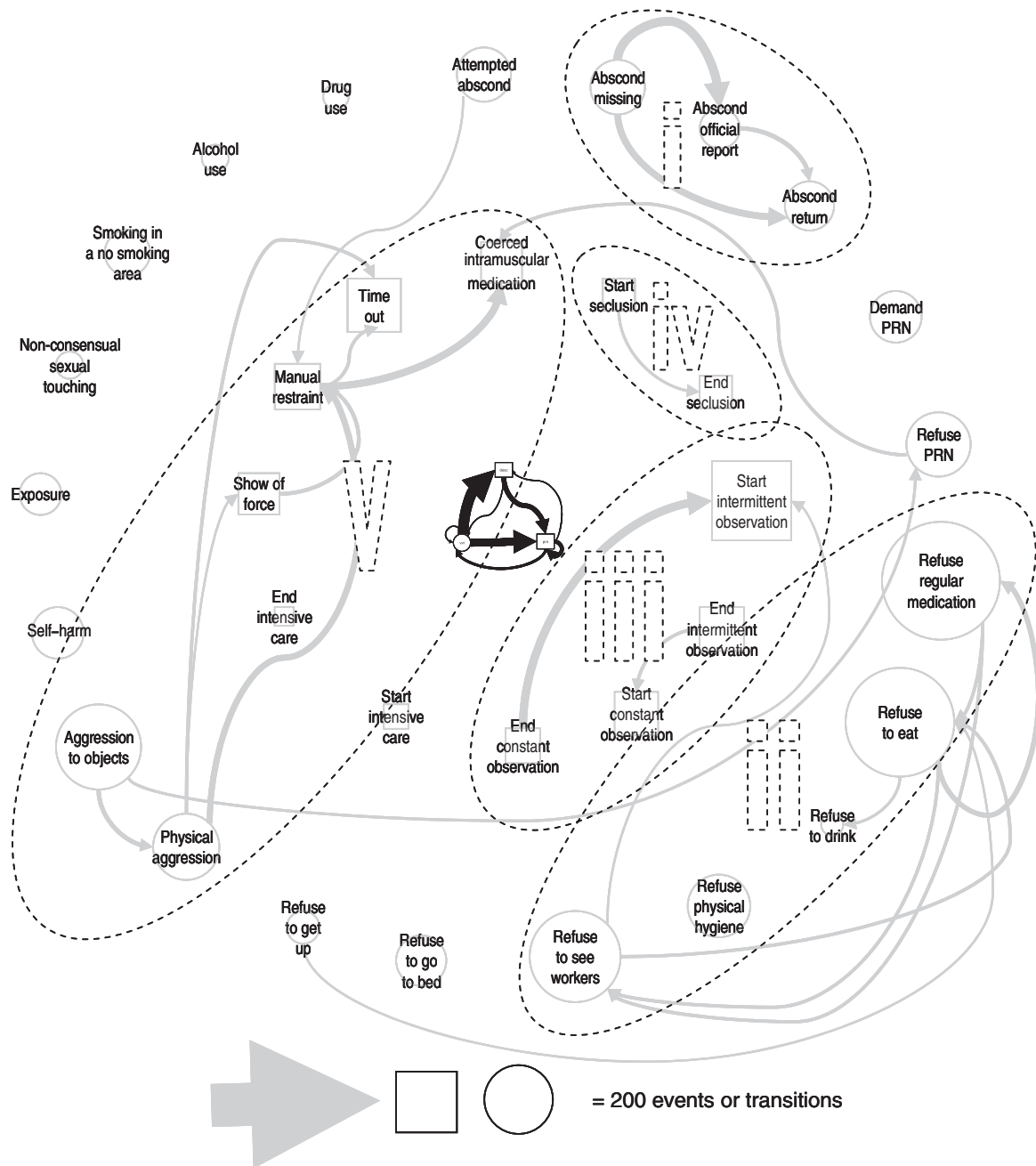


FIGURE 5 Common Transitions between other Conflict and Containment Events. The size of the squares and circles is proportional to the number of events; the width of the arrows indicates transitions and is proportional to their number.

led to further incidents of verbal aggression, more so than for de-escalation.

Another approach that might aid in prevention would be to focus on those events more likely to initiate sequences for further events. Some of these do necessitate an immediate staff intervention, for example physical aggression to others, suicide attempts, exposure, and non-consensual sexual touching. Other events,

however, may not. Damage to objects or property could be ignored for some time while verbal de-escalation continued, on the grounds that objects can always be replaced. Much self-harm is of a relatively minor nature and could be tolerated while psychological interventions are deployed (James, Stewart, & Bowers, 2012). Regular medication refusal is clearly a central issue in acute inpatient care, yet there is little practical empirical research

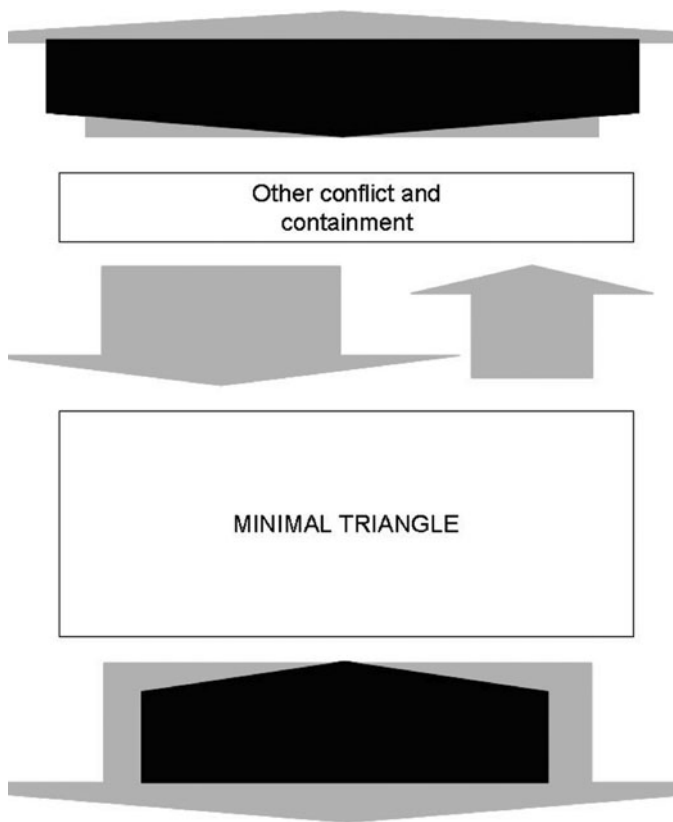


FIGURE 6 Main Transitions between Event Categories.

on the best way to respond to this (Owiti & Bowers, 2011). All these are areas that might yield to strategies for prevention.

Events that are more likely to end sequences might indicate containment efficacy, and we have already discussed PRN medication in this regard. Nearly all containment methods feature prominently as sequence ends, suggesting efficacy within the shift. However it would be good to know if these were interchangeable or could be avoided altogether and, if not, which were best, what the longer term efficacy was (e.g., manual restraint might be effective in the short term but trigger long-term resentment, anger, and further incidents), with who, in what circumstances, and which were the least distressing for patients. However part of the problem with establishing answers to such questions is that views amongst patients (as well as staff) are amazingly variable (Whittington, Bowers, Nolan, Simpson, & Neil, 2009), even more so between different countries (Martin, Bernhardsgrutter, Goebel, & Steinert, 2007).

The classic textbook description of ward crises is that they happen as a gradually rising curve of agitation and escalation, and resolve slowly through the same stages (Kaplan & Wheeler, 1983). The data we have presented here are not fully compatible with that view. There are clearly multiple entry and exit points as well as dramatic and sudden onsets and cessations. Similar non-linear processes to escalation have been reported in a qualitative study conducted in the US (Johnson & Delaney, 2007). In fact,

this seems to be more common than the textbook picture of gradual escalation. One implication of this finding might be that staff have less time to plan and participate in an interaction with the patient; instead, on many occasions, they are being driven to cope with suddenly arising crises, some of which necessitate urgent and severe containment interventions. The fact that so many incidents are still managed with a benign outcome is testament to the existing skill set of inpatient nurses.

CONCLUSIONS AND LIMITATIONS

All information about the sequence of events was drawn from nursing notes. Although these were comprehensive and detailed, varying quality and accuracy may have led to an unknown number of errors. Prospective observational data might be more accurate, but impractical to collect on such a large scale. A relatively high number of patients (44%) refused to provide consent for participation, being reluctant to allow their notes to be accessed. This may have biased the sample in unknown ways, although the main expressed concern was the sensitivity of confidential information in the case record. Short-term patients (with stays less than two weeks) were excluded from this study, limiting the generalisability of findings.

Most sequences of conflict and containment events are short, and most commonly consist of a mixture of verbal aggression, de-escalation, and the use of PRN medication (the minimal triangle). Only a minority of these escalate into more serious conflict and containment events. A large number of other crises start with more serious events, and some of these are dissipated through the minimal triangle. Training in the prevention and management of violence needs to acknowledge that a gradual escalation of patient behaviour does not always occur. Verbal aggression is a critical initiator of conflict events, and requires more detailed and sustained research investigation on optimal management and prevention strategies. Similar research is required into medication refusal by inpatients.

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